

0 **REMARKS**

The comments of the Examiner as set forth in the Office Paper mailed 14 November 2005 have been carefully studied and reviewed. Applicants appreciate the Examiner for her time and consideration of the matters discussed at the 27 April
5 interview.

Claims 30-39, 41-42 and 45 are pending in the application.

Claims 30-39, 41-42 and 45 have been rejected.

New Claim 47 has been added.

10 The specification has been objected to.

Specification

The disclosure was objected to because of informalities.

15 The first amendment to the specification is to correct a typographical error in which page 20 was incorrectly written instead of page 30, as noted by the Examiner.

20 The reference to the provisional application 60/401,382 in the 9/25/2003 preliminary amendment has been corrected. One amendment corrects the citation to that provisional application from the preliminary amendment; the second corrects the cross-references of the substitute specification filed 6 December 2004. Any references to the specification discussed in this paper will refer to page and line numbers of the substitute specification filed 6 December 2004.

25 **Claim Rejections: 35 U.S.C. § 103**

Rejections over U.S. 6,011,286

30 Claims 30-39, 41-42 and 45 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sleeter (U.S. Pat. No. 6,011,286, "the '286 reference").

0 The '286 reference allegedly teaches enhancing water resistance of materials such as fiberboard (1:54-67) with a composition of low iodine value (preferably 0-30, col. 1:40-52) triglyceride fats from plant or animal sources (col. 2:21-46), such as a soy stearine (see Example 1), a triglyceride with stearic acid.

5 The '286 reference does not disclose the MP or saponification value of the triglyceride, but because stearine is one of the triglycerides claimed by applicant, the stearine of '286 is alleged to have, inherently, the same MP and saponification value as that claimed by applicant. Neither does the '286 reference disclose the viscosity of the wax emulsions used in its examples.

10 Applicant respectfully traverses the rejections of Claims 30-39, 41-42 and 45. To reject a claimed invention based upon its obviousness over the prior art, the examiner must support such a rejection by establishing the invention's prima facie obviousness. The examiner must show where in the art cited there is a description of the claimed
15 invention sufficient to have taught or suggested the invention to ordinarily skilled artisans of the time (see, e.g., ACS Hospital Systems, Inc., v. Montefiore Hospital, 221 USPQ 929, 933 (F. Cir. 1984); see also, In re Fine, 5 USPQ2d 1596 (F. Cir. 1988)).

20 Evaluation of whether the cited documents provide the necessary description requires consideration of "(1) whether the prior art would have suggested to those of ordinary skill in the art they should make the claimed [invention] ... and (2) whether the prior art would have also revealed that in so making ... those of ordinary skill would have a reasonable expectation of success" (In re Vaeck, 20 USPQ2d 1438, 1442 (F.Cir. 1991)). "Both the suggestion and the reasonable expectation of success must be found
25 in the prior art, not in the applicant's disclosure" (In re Vaeck, supra.). That is, "one cannot use hindsight reconstruction to pick and choose amongst isolated disclosures in the prior art to deprecate the claimed invention" (In re Fine, supra at 1600).

30 These allegations that the claimed properties are inherent in the reference are based merely on hindsight, because the teaching of applicants' claimed invention, and not that of the reference, is being used to teach what was not taught or recognized by

0 the reference. The '286 reference does not, as stated by the examiner, discuss
properties such as the melt point, saponification number or viscosity of the materials.
The Court of Claims and Patent Appeals ("the C.C.P.A.") and its' successor court, the
Federal Circuit, have both held such use of an applicant's application to complete gaps
in the reference is improper. See In re Shetty, 195 USPQ 753, 756-57 (C.C.P.A. 1957)
5 (that which is inherent in the prior art, if not known at the time of the invention, cannot
form a proper basis for rejecting the claimed invention as obvious under 35 U.S.C,
§103(a))

In In re Spormann, 150 USPQ 449, 452 (C.C.P.A. 1966) the court stated:

[T]he inherency of an advantage and its obviousness are entirely different
10 questions. That which may be inherent is not necessarily known, Obviousness
cannot be predicated on what is unknown.

The Federal Circuit stated that "Inherency is quite immaterial if ... one of ordinary skill in
the art would not appreciate or recognize the inherent result" in In re Rijckaert, 28
USPQ2d 1955, 1957 (F.Cir. 1993). The melt point, saponification number and viscosity
15 are unknown in the '286 reference.

Tables 1 and 2 of the specification (p. 14-15, respectively) summarize properties
of the inventive waxes, and the fatty acid composition of these waxes ranges from C₈
through C₂₀. The soy wax has a greater concentration range of C_{18:0} (stearic acid) than
20 the palm wax, but these particular fatty acid concentrations do not indicate the actual
stearic acid content of any triglyceride in the wax, whether it is a mono-stearate or a di-
stearate, with one or more additional fatty acids, or a tri-stearate. One cannot
automatically assume that merely because a triglyceride is present, it contains three
molecules of stearic acid, nor can one assume that the properties of the inventive waxes
25 would be properties inherent in tristearin when one does not know whether the
triglyceride comprises three stearic acid molecules. To use the Applicants' teaching and
recognition of the properties of the inventive waxes to fill in the gaps of a reference is
improper speculation, when the reference itself fails to recognize such properties.
Accordingly, the rejection of Claims 30 and 45 under 35 U.S.C. §103(a) must therefore
30 be withdrawn.

0 Because the reference indicates that dry particles of the triglyceride may be sprayed onto the substrate (col. 3:1-19), the '286 reference allegedly means the composition is then 100% triglyceride, thereby meeting claim 41.

5 But the reference states this spray application is performed prior to the material being laminated or pressed. The application of the dry particles is thus merely an intermediate step in the process, and because later steps of the process utilize additional materials, one skilled in the art can only speculate as to what the final concentration of the sprayed on dry particles may be in the final product. Such speculation is impermissible, and therefore the rejection of Claim 41 under 35 U.S.C. §103(a) must be withdrawn.

10 The '286 reference is also alleged not to describe recycling the fiber board or other fibrous materials, but because '286 is using the same triglyceride as applicant, the material is inherently dispersible in a warm alkaline aqueous solution. Claims 30 and 45 do not require recycling, only that the composition applied is dispersible in warm alkaline aqueous solution.

15 In response, Applicants reiterate the statements and case law previously cited regarding inherency, melting point and other parameters. It is the Applicants' teaching being used in hindsight to fill the gap of the reference, because the reference fails to recognize any such properties of their composition. The '286 reference deals with rendering structural products water resistant; it does not recognize, nor even attempt to determine, whether the applied composition is dispersible under aqueous conditions. Therefore, the rejections of Claims 30 and 45 under 35 U.S.C. §103(a) are improper and must be withdrawn.

20 Also at issue is whether the '286 reference teaches application of its' composition to a group of materials that is broader than oriented strand board and related structural materials, such as to fibrous vegetable materials (alleged to be inclusive of paper) and fiber board.

0 Applicants maintain their position of the 2 Sept. 2005 amendment, and incorporate it by reference herein. In addition, the title of the '286 reference refers to "composite boards". The specification focuses on using the material for composites such as

5 "particle board, plywood, oriented strand board ("OSB"), medium density fiberboard, hardboard, formed molded shapes, etc.. Adhesives and laminants alone or synergistically blended together are used to bond these materials into desired forms such as panels, structural shapes, etc." (col. 1, lines 56-61).

10 The examples utilize oriented strand board. The overall focus of the specification and examples is on structural products, oriented strand board in particular; there are broad references within the specification referring to the material's use on "composite materials which generally include wood, fibers and other agricultural materials" (col. 1, lines 53-55), or wood fibers (col. 3, lines 8-10).

15 The file history of the '286 patent includes statements from the patentee's attorney that the scope of the '286 patent was intended to be limited to structural products. In an "Election and Traverse of Restriction Requirements" filed 13 October 1988, the patentee's attorney states, at two locations within the document, that "The invention relates to waterproofing a composite board or panel" (p. 2, second to last
20 paragraph, first line), and "Here, the invention is a process for making a new and novel composite panel which, in turn, has superior characteristics." (p. 3, paragraph under the heading of "Necessity Test", second and third lines). A copy of the "Election and Traverse of Restriction Requirements" filed 13 October 1988, is attached hereto as Exhibit A.

25 In view of this admission of how the inventor viewed the scope of the patent, as stated by the patentee's attorney during the prosecution of the '286 patent, it is apparent that the '286 reference does not intend to cover the fibrous cellulosic articles claimed by the Applicants in the present application.

30 Thus, when viewed as a whole, Applicants respectfully submit that the '286

0 reference suggests to one skilled in the art to use the materials of the reference for structural products, and thus there is no motivation for its' use for coating paper products and related materials as claimed in the present application. New claim 47 further describes the cellulosic products on which the inventive coating can be applied. The basis for this amendment is in the specification on p. 3, lines 11-16, and p.18, lines 1-5.

5 Thus, one skilled in the art would not have looked to the Sleeter '286 reference to teach a composition for application to fibrous cellulosic materials that would produce a product with a coating that is recyclable. Therefore, Applicant respectfully submits that the rejection of Claims 30-39, 41-42, and 45 under 35 U.S.C. §103(a) have been
10 overcome, these Claims define patentable subject matter, and that the Examiner's rejection of Claims 30-39, 41-42 and 45 hereby be withdrawn.

Rejections over WO 96/00815

15 Claims 30-39, 41-42 and 45 were rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/00815 ("the '815 reference").

20 The '815 reference allegedly teaches applying a coating containing a triglyceride such as tristearin or a hardened vegetable oil to a paperboard, in order to make the coated paperboard more repulpable. Tristearin is a triglyceride with stearic acid; and additives such as beeswax, a type of paraffin (page 5), may also be present. The coating composition may be applied in the molten state (p 5), thus meeting the requirements of claim 41. It is disclosed that the triglycerides may be removed from paperboard by several different means, including hot water (pp 6-7). See pages 2-7.

25 The federal courts have held that in performing an obviousness analysis, one must also consider if the prior art provides the required expectation of success, as "both the suggestion and the expectation of success must be founded in the prior art, not in applicant's disclosure." See In re Dow Chemical Co. v. American Cyanamid Co., 5 USPQ, 1529, 1531 (F. Cir. 1988).

30 As will be described in the attached declaration (Exhibit B) from one of the

0 applicants, Mr. Gregory Borsinger, the invention described in the '815 reference is not
being commercially used because of a problem known as blocking. Lard is the major
material cited in the examples of the '815 reference, and when materials coated with the
product of the '815 reference are stacked upon each other, they adhere to one another,
resulting in what is known in the industry as an undesirable property termed blocking.
5 This blocking is believed to be caused either because the melting point of the material is
too low, or that the material used for the coating contains some low molecular weight
fractions which contribute to the blocking problem.. Thus, because the product and
process of the '815 reference are not used, one skilled in the art would not have looked
to this reference for guidance, and the '815 reference therefore fails to render Claims 30-
10 39, 41-42 and 45 unpatentable under 35 U.S.C. §103(a). .

The inventive soybean wax and several soybean waxes hydrogenated to cover a
range of iodine values (from iodine values of about 2 to about 65) were tested for their
blocking properties. As stated in Mr. Borsinger's declaration (and shown in Fig. 1 of
15 Exhibit B) the blocking temperature of the inventive hydrogenated soybean wax (Nat
155, having an iodine value of about 2, see specification at p. 13, lines 18-20 and Table
1, p.14) is about 147 degrees F., close to this wax's Mettler drop point of 155-160
degrees F. In the specification at p. 11, lines 23-26, Applicants indicate that a wax that
is thermally stable is beneficial. This thermal stability is further supported by the
20 blocking data referred to in Mr. Borsinger's Declaration.

Mr. Borsinger's declaration includes data sheets from CITGO Petroleum
Corporation, of Tulsa, OK, regarding properties of two wax product lines, CITGO
Cascade Wax and CITGO PACEMAKER® waxes. These data sheets indicate that the
25 melting temperature of the waxes is generally higher than the blocking temperature of
the waxes. The Cascade Wax is used for Cascade and other saturating wax operations,
similar to the use of the claimed waxes in the current application. Thus, one can see
that the melting temperature of the wax has an effect on the final usage of the product.

30 Accordingly, the '815 reference therefore fails to render Claims 30-39, 41-42 and
45 unpatentable under 35 U.S.C. §103(a). The rejections of these Claims must

0 therefore be withdrawn.

 It is alleged that tristearin is a claimed triglyceride, and that although the '815
reference does not disclose the iodine value, MP or saponification value of the
triglyceride, the tristearin of '815 would inherently have the same properties as that
5 claimed.

 Applicants do not claim tristearin in any claim. This rejection is erroneous and
must therefore be withdrawn.

10 The '815 reference does not disclose the iodine value, MP or saponification
value, or viscosity of the triglyceride and these properties are alleged to be inherent, and
the same as those values claimed.

 In response, Applicants reiterate the statements and case law previously cited
15 regarding inherency, melting point and other parameters regarding the '286 reference. It
is the Applicants' teaching being used in hindsight to fill the gap of the '815 reference,
because the reference fails to recognize any such properties of their composition. The
'815 reference deals with tristearine, a triglyceride not used or claimed by Applicants.
Therefore, these Claim rejections under 35 U.S.C. §103(a) are improper and must be
20 withdrawn. Tables 1 and 2 of the specification (p. 14-15, respectively) summarize
properties of the inventive waxes, and the fatty acid composition of these waxes ranges
from C₈ through C₂₀. The soy wax includes a greater concentration range of C_{18:0}
(stearic acid) than the palm wax, but these concentrations do not indicate whether the
actual stearic acid content of any triglyceride in the wax. Therefore one cannot
25 automatically assume that merely because a triglyceride is present, it contains three
molecules of stearic acid, nor can one assume that the properties of the inventive waxes
would be properties inherent in tristearin when one is not sure that the triglyceride
comprises three stearic acid molecules. As stated previously, to use the Applicants'
teaching and recognition of the properties of the inventive waxes to fill in the gaps of a
30 reference is improper speculation, when the reference itself fails to recognize such
properties.

0 At issue is whether the '815 reference, taken as a whole, teaches repulping of the coated material. The Examiner argues that p. 8 of the reference lists repulping as a method of removing triglycerides from paperboard.

5 But having knowledge that the product and process of the reference are not being used, such knowledge would suggest to one skilled in the art use this reference as a basis for performing further work in this area; suggesting that the reference really teaches away from the present invention. Therefore, the '815 is an improper reference, and the Claims rejected using this reference under 35 U.S.C. §103(a) must therefore be withdrawn.

10 **Rejections over RD 392017**

 Claims 30-33 and 41 were rejected under 35 U.S.C. 103(a) as being unpatentable over RD 392017 ("the '017 reference").

15 The '017 reference allegedly teaches a waterproofing coating that comprises palm stearine with an iodine value of 12.7 or 38.2 and a melt point of 50-65 degrees C. The paper is easily recycled. '017 does not teach the recycling method, but it is alleged it would have been obvious to one of ordinary skill in the art to have selected a conventional method such as a warm alkaline bath.

20 The '017 reference was cited as an abstract (Derwent accession number XP002239726) by the International Bureau of WIPO in the International Search Report in 2003, as a reference reflecting the general state-of-the-art. Applicant has obtained the entire reference, and it has been submitted in an Information Disclosure Statement,
25 filed as a separate paper.

 The '017 reference cites European Patent, EP 0 536 861 B1, whose inventor is Mettler; as teaching the use of hydrogenated triglycerides to prepare a water proof coating for paper. The Mettler patent has been reviewed by Applicants, and teaches
30 using a hydrogenated triglyceride (hydrogenated to an iodine value of about 10) to prepare a paper coating which can be used to wrap fat-containing foods; the Mettler

0 reference states nothing about the coating being water proof, only that it can be used for
fat-containing foods, and will not adversely affect the products contained therein.
(Example 2).

5 In compliance with the duty of disclosure under 37 CFR § 1.56, the Mettler patent
has also been submitted in the IDS. The text of the Mettler patent is in German, a set of
claims is in English. A translation of the Mettler patent to English is provided with the
original German language European patent.

10 In response, the '017 reference claims that an advantage of its paper coating is
that the material is easily recycled. Applicant respectfully submits that taken as a whole,
the '017 reference, in fact, teaches away from the present invention. The '017 reference
(third paragraph, last three lines, on p. 772) states that

15 it is not necessarily an advantage to work with fully or nearly fully-hydrogenated
mixtures of triglycerides, as they tend to have a very sharp melting profile, i.e.,
they are more brittle and sometimes tend to crack on the paper."

20 Also on p. 772 of the '017 reference, the fifth paragraph (lines 2-3) includes a
statement about It being advantageous to incorporate an emulsifier into the coating wax
in order to test for recyclability. The Basic Abstract (first page of the reference)
mentions using an emulsifier in the mixtures. But the text of the '017 reference does not
specify whether any emulsifier was incorporated into the mixtures tested (only referring
to mixtures having different percentages of the stearines). There is no data to indicate
the mixtures were actually used as paper coatings, and if so, if such coatings were in
fact recyclable.

25 The data in the '017 reference compares the plasticity (determined as melting
temperature as a function of fat content) of the various mixtures they developed, and
comparing the profiles to a commercial product composed of partly hydrogenated and
fractionated vegetable triglycerides. Because the profiles for the various mixtures were
30 similar to that of the commercial product, it was concluded that the mixtures should
behave similarly to the commercial product. But the '017 reference states nothing else

0 about the properties of the commercial product used for the comparison, such as the degree of hydrogenation or iodine value, and there is no data to show that the mixtures are actually a paper coating, or, for that matter, that such a coating would be recyclable.

5 Thus, taking the teachings of the '017 reference as a whole, one skilled in the art would conclude that these fully or partially hydrogenated triglyceride mixtures would not be usable for paper coatings that can be recycled because there is simply no data to support a conclusion of teaching paper coatings that are recyclable.

10 Regarding the EP 0 536 861 B1 patent ("the '861 patent"), taken as a whole it illustrates the use of a hydrogenated animal fat (a triglyceride fractionated from lard and then hydrogenated to an iodine value of 10) as a paper coating.

Claim Amendments

15 The amendments to independent Claims 30 and 45 are to indicate that the composition is a vegetable-derived triglyceride.

20 The addition of new Claim 47 is to further identify the fibrous cellulosic products with which the inventive waxes can be used. The basis for this amendment can be found in the specification on p. 3, lines 11-16, and p.18, lines 1-5.

25 Regarding the hydrogenation process, as stated in the specification, the extent of hydrogenation can be controlled, and one can obtain a wax having different degrees of hydrogenation. The iodine value is a parameter that reflects the degree of hydrogenation, in that the lower the iodine value, the greater is the extent of the hydrogenation, but iodine value is generally not used as a measure to indicate a specific number of double bonds within a compound. See specification at p. 7, lines 14-19, and 10, lines 26-31, and 11, lines 2-8, regarding fully and partially hydrogenated compositions, and p. 10, lines 20-24 regarding the iodine value and degree of unsaturation of a particular compound. From the context of the specification, and the
30 iodine value stated in the claims, one of ordinary skill in the art would know whether the claims are describing a fully hydrogenated, or a partially hydrogenated composition.

0 **Conclusion**

Applicant thanks the Examiner for her thoughtful review of this application, and respectfully requests the Examiner review the pending Claims and to find that they define patentable subject matter. Thus, it is respectfully requested that the present
5 pending Claims be allowed.

In the event that this Amendment does not place the application in condition for allowance, the Examiner is respectfully requested to telephone the undersigned in order that an attempt can be made to place the application in condition for allowance as
10 expeditiously as possible.

Respectfully submitted,

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